CubeX™ 3D printer

User guide

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Thank you for purchasing the “CubeX™” Printer. This printer enables everybody in the family to express their creativity like never before. With eighteen different material colors to choose from, enjoy the freedom to print in your true colors or to mix it up. CubeX 3D Printers ready-to-print technology provides a new dimension to your imagination and helps you share your creations with others in the Cubify community at Cubify.com. At Cubify.com you can:

- Upload your creations for sale
- Purchase creations from others
- Get your creations 3D printed and shipped to you
- Buy the Cube 3D Printer and Cube Cartridges
- Engage with other creative partners

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FCC NOTICE

This equipment has been tested and found to comply with the limits for a class “B” digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their expense.

WARRANTY

3D Systems warrants that the CubeX 3D Printer will be free from defects in materials and workmanship, during the applicable warranty period, when used under the normal conditions described in the documentation provided to you, including this User Guide. 3D Systems will promptly repair or replace the CubeX 3D Printer, if required, to make it free of defects during the warranty period. This warranty excludes (i) normal consumable or expendable parts (such as Material Cartridges), (ii) repairs required during the warranty period because of abnormal use or conditions (such as riots, floods, misuse, neglect or improper service by anyone except 3D Systems or its authorized service provider), and (iii) repairs required during the warranty period because of the use of non-integrated, non-approved or non-licensed materials with the CubeX 3D Printer. The warranty period for the CubeX 3D printer is the shorter of (i) 90 days from the date your CubeX 3D printer is activated or (ii) 24 months after the CubeX 3D Printer is shipped from 3D Systems to the end customer or intermediary. For consumers who are covered by consumer protection laws or regulations in their country of purchase or, if different, their country of residence, the benefits conferred by our ninety (90) day warranty are in addition to, or operate concurrently with, all rights and remedies conveyed by such consumer protection laws and regulations, including but not limited to these additional rights.
THIS WARRANTY IS THE ONLY WARRANTY PROVIDED FOR THE CUBEX 3D PRINTER. TO THE MAXIMUM EXTENT PERMITTED BY LAW, 3D SYSTEMS EXPRESSLY DISCLAIMS ALL OTHER WARRANTIES FOR THE CUBEX 3D PRINTER AND EACH OF ITS COMPONENTS, WHETHER THOSE WARRANTIES ARE EXPRESS, IMPLIED OR STATUTORY, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR INTENDED OR PARTICULAR PURPOSES.

LIMITATION OF LIABILITY

3D SYSTEMS WILL NOT BE RESPONSIBLE FOR CONSEQUENTIAL, EXEMPLARY OR INCIDENTAL DAMAGES (SUCH AS LOSS OF PROFIT OR EMPLOYEE’S TIME) REGARDLESS OF THE REASON. IN NO EVENT SHALL THE LIABILITY AND/OR OBLIGATIONS OF 3D SYSTEMS ARISING OUT OF THE PURCHASE, LEASE, LICENSE AND/OR USE OF THE EQUIPMENT BY YOU OR OTHERS EXCEED THE PURCHASE PRICE OF THE CUBEX 3D PRINTER.

IMPORTANT SAFETY INFORMATION

SAFETY SYMBOLS AND DEFINITIONS

Hot Surface Hazard: A hot surface is accessible in the vicinity of this sign or at the Print Jet; avoid contact. Hot surfaces can cause severe burns.

Caution: Indicates something may happen that could cause loss of data, damage to equipment, or could cause personal injury.

Caution: Indicates a pinch point hazard that could cause person injury.

SAFETY GUIDELINES

- Follow all safety rules in this section and observe all cautions and warnings in this guide.
- Do not modify any safety features or make modifications to the Cube. Doing so is prohibited and voids warranty.
- Use of print materials, or 3D prints other than 3D Systems print materials and genuine 3D Systems components may void warranty.
- Adult supervision is required; observe children closely and intervene as necessary to prevent potential safety problems and ensure the Cube's appropriate use. Ensure small 3D prints are not accessible to young children.
- These 3D prints are potential choking hazards for young children.
- When the Cube is operating, the print tip on the Print Jet becomes hot; avoid touching this area until it has cooled down.

CUBEX 3D PRINTER FEATURES AND BENEFITS

The CubeX creates the model by pulling filament from the cartridge through the print jets via the delivery tubes. The filament is then jetted through the print tip in a thin string of molten plastic. The print jet is accommodated by the print plate, which lowers incrementally after each layer is deposited so a new layer can be drawn on top of the last, building the part up.

CUBEX 3D PRINTER PROPERTIES

- Plastic Jet Printing technology
- Houses up to three print jets for multi-color and multi-material prints
- Choice between ABS and PLA plastic, both recyclable
- Prints objects up to 275 x 265 x 240 mm (10.75"x10.5"x9.5")
- EZ load print cartridge
- Fully automated supports: peel off supports for ABS and PLA; PLA supports can also be removed using the Ultrasonic Support Removal Tank available at **Cubify.com/cubex/store_parts**

PRINT MATERIALS

The CubeX can use two different types of print materials: PLA and ABS. Each material has unique benefits and you can guide your selection based on the properties your part requires.

PLA	This is a hard plastic that has a low environmental impact. It is derived from renewable, starch-based resources. We recommend using PLA when printing extra-large parts on CubeX as it is a more stable print material. PLA is the optimal support material for industrial ABS parts. PLA has the ability to dissolve away in caustic soda solutions supported by an ultra-sonic tank. (see page 36 for more information)
ABS	This is a well-known plastic known for its strength and industrial properties. As a build material, ABS is good for both small and large parts. ABS works as an excellent support material for extra-large PLA parts.

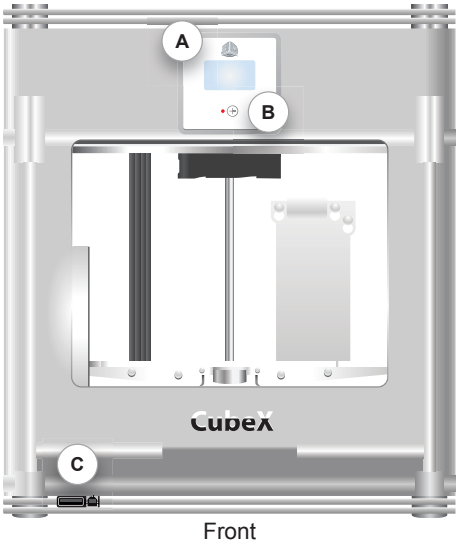
MATERIAL COLOR CHOICES

Glow-in-the-dark Neon Green
Glow-in-the-dark Neon Blue
White
Black
Silver
Industrial Grey
Natural*
Magenta
Red

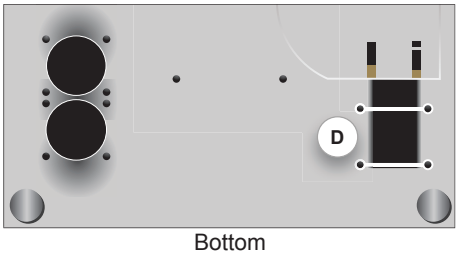
Neon Orange
Tan
Yellow
Neon Green
Green
Blue
Teal
Purple
Brown

* Natural is only available in PLA plastic, not ABS.

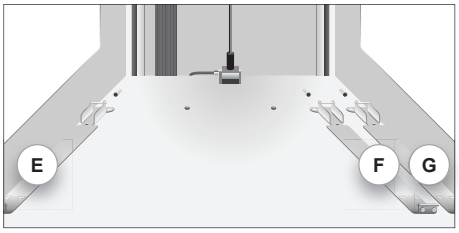
AT A GLANCE



Front



Bottom



Inside

- (A) Touchscreen
- (B) Function button
- (C) Memory stick USB port and PC connection USB port
- (D) Power supply
- (E) Cartridge dock 1
- (F) Cartridge dock 2
- (G) Cartridge dock 3

REQUIREMENTS FOR YOUR CUBEX

Weight and dimensions:

- 515mm (w) x 515mm (l) x 598mm (h) (20 ¼" x 20 ¼" x 23 ½" inches)
- 36kg (79 lbs)
- 37kg (81.5 lbs) *Duo*
- 38kg (84 lbs) *Trio*

Minimum hardware requirements (a PC with these minimum requirements will be required to run the software):

- Processor: Multi-core processor - 2GHz or faster per core
- System RAM: 2 GB
- Screen Resolution: 1024x768

PC requirements:

- Microsoft® Windows® 7
- Microsoft® Windows® XP (SP3 or higher)
- Microsoft® Windows® 8

Software:

- CubeX Client Software, available at **Cubify.com**

Electrical requirements:

- 110-240v AC

Material storage (although all polymers degrade with time, the following conditions help ensure that the material remains of high quality):

- Unpack material only as needed
- Store material at 10-30°C
- Use within 12 months of receipt

UNPACKING AND SETTING UP THE CUBEX

WHAT'S INCLUDED

CubeX printer

Material cartridge

CubeStick (x2)

USB Stick *

Jet Wiper

Power cord

Toolkit

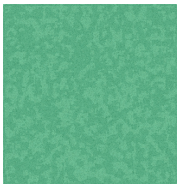
Nippers

Needle nose pliers

Wrench

Print Pad cleaner (scraper)

Hex screwdrivers (x3)


Sandpaper

Allen Wrench

Drillbit

UNPACKING YOUR CUBEX (FOLLOW UNPACKING GUIDE)

1. Open the box and take out the top lid of the CubeX, it's between two layers of foam. (Fig. 1)
2. With two people take CubeX out of the box, lift from the metal frame on both sides of the machine. Place CubeX on a table. (Fig. 2)
3. Remove toolkit, power cord, CubeStick and Jet Wiper from bottom of the box. (Fig. 3)
4. Using the nippers supplied in toolkit cut the strap and take out the material boxes. (Fig. 4)
5. Cut away all yellow zip ties holding the Print Jet in place for transport. (Fig. 5)
6. Cut away all yellow zip ties holding the foam parts in place. (Fig. 6)
7. Remove all foam fittings. (Fig. 7)
8. Remove plexiglass Z-Axis guard, by unbolting the 4 screws holding it in place. (Fig. 8)
9. Remove the plexiglass part.
10. Plugging in the CubeX:
    - To power on plug the power lead into the power supply located on the base of the machine. (Fig. 9)
    - The LED on the control panel should light up indicating your machine has power
    - Click the function button on the control panel to turn on CubeX
11. Click the function button to power on your CubeX. (Fig. 10)
12. Using the touch screen navigate to the move function. (Fig. 11)
13. Using the up arrow move the print bed up far enough to remove the foam. (Fig. 12)
14. Remove the last foam piece underneath the build plate. (Fig. 13)
15. Move the Print Pad all the way down to install the Jet Wiper. (Fig. 14)
16. Install the Jet Wiper. Insert the wiper's two key holes onto the two rods located at the back, right side of printer. The wiper's metal piece and spring should be facing the front. (Fig. 4)

Fig. 1

Fig. 2

Fig. 3

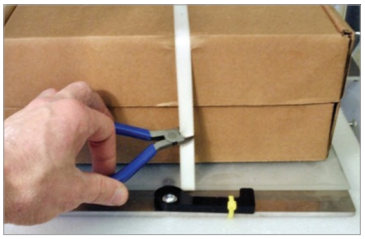


Fig. 4

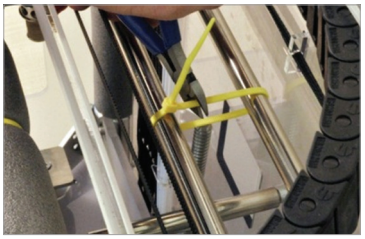


Fig. 5

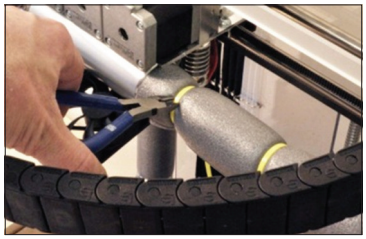


Fig. 6

Fig. 7

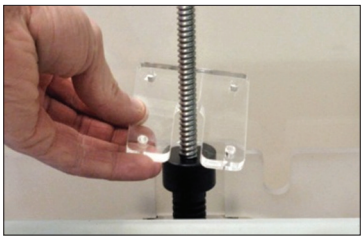


Fig. 8

Fig. 9

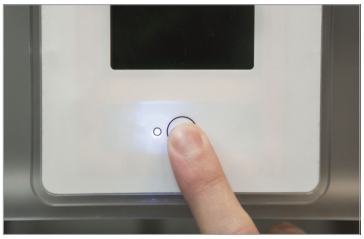


Fig. 10

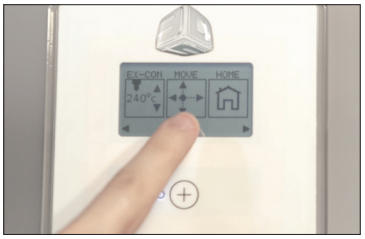


Fig. 11

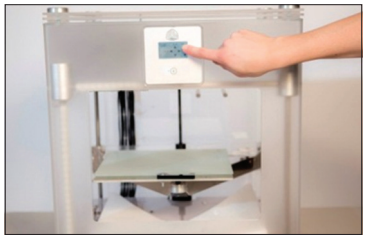


Fig. 12

Fig. 13

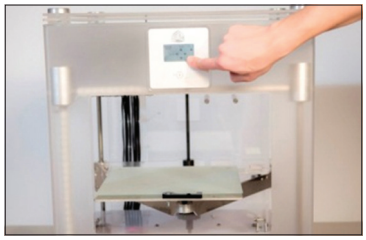


Fig. 14

Fig. 15

LINK YOUR CUBEX TO YOUR CUBIFY ACCOUNT

Creating an account on Cubify.com is easy and gives you access to all of the great designs and collections that will drive and inspire your creativity. Once you have set up an account you will be able to activate your CubeX by entering your CubeX's individual serial number in the designated bar under the **Activate My Cube** tab. An activation code will then be sent to the email account you used to register. This code will be used to unlock your CubeX so that you can get your 3D printing underway.

- In the My Cubify dropdown menu, Click on **Activate my CubeX**.
- Enter the printer's serial number and CubeX ID in the designated fields. Serial numbers can be found in two places: the interior back wall of your CubeX printer and the exterior of the CubeX box.
- Your Activation ID can be found on the upper right corner of the CubeX activation screen.
- Cubify.com will display you four digit activation code in a pop-up window.
- Enter the Activation ID into your CubeX using the numbers on your touchscreen.
- Make a note of your activation code as this may be required in the future.

CHECKING THE XYZ AXIS

Before you start using your CubeX you need to verify that no damage was inflicted on the X, Y or Z axes during shipping. To do this, select the 'Move' option on the main menu.

CAUTION: Always move the Z axis down first to avoid collision with the print tips. When moving the X and Y axis, make sure you do not stray too far from the home switches (left rear of the machine) as this can cause collision with the printer frame. Excessive collisions will damage the printer.

1. Move each axis in both directions, using the arrows on the screen.
2. After checking that all axes work, use the function button to go back to the main menu.

3. Select to the ‘Home’ option on the main menu.
4. Click the ‘Home’ button. This will move the print jet carriage to each of the home switches, checking the XYZ axis and the Home function. The print jet carriage should stop in the home position in the back left corner of the machine.

NAVIGATING THE CUBEX MAIN MENU

Navigate the main menu using the arrows on the bottom corners of the touchscreen. (Fig. 16)

LOADING MATERIAL CARTRIDGE

The ‘Replace’ function will take you through the process of removing a cartridge and replacing it with a new one. (Fig. 17) If you are fitting a new cartridge to an empty dock, skip ahead to loading the cartridge.

REMOVING THE CARTRIDGE:

1. Select print Jet 1,2 or 3.
2. A message “Heating Print Jet Please Wait…” will appear on the control panel.
3. Once print jet is heated, gently pull the filament from the feed tube. (Fig. 18)

FITTING THE NEW CARTRIDGE:

1. Remove the thumbscrew from the new cartridge.
2. Install thumbscrew into used cartridge. (Fig. 19)
3. Pull 300mm of material from the new cartridge.
4. Cut 50mm from the end of the filament. (Fig. 20)
5. Thread the filament under the cartridge clamp bar and into the feed tube. (Fig. 21)
6. Install the new cartridge into the cartridge dock. (Fig. 22)
7. Push filament through the feed tube until it begins to jet. (Fig. 23 & 24)

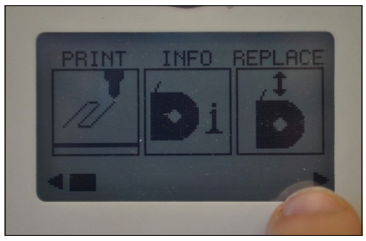


Fig. 16

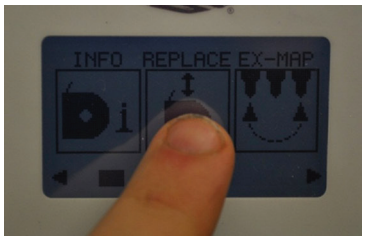


Fig. 17

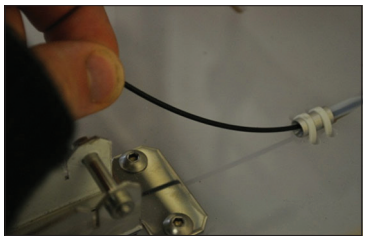


Fig. 18

Fig. 19

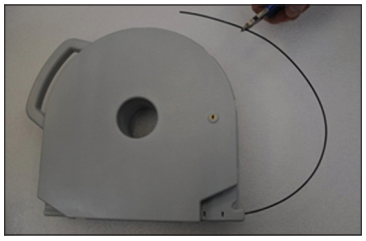


Fig. 20

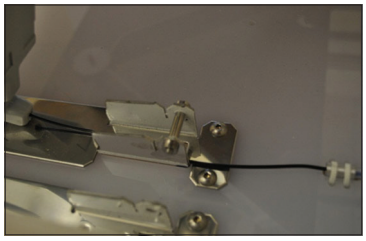


Fig. 21

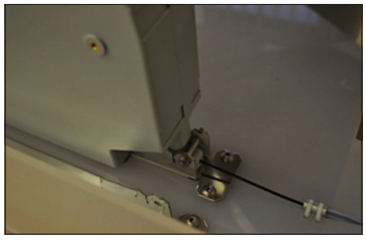


Fig. 22

Fig. 23

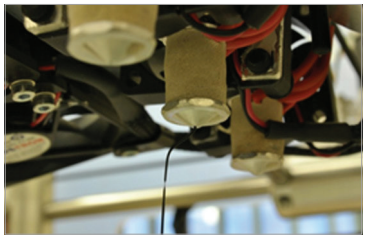


Fig. 24

INSTALLING THE PRINT PAD

1. Scroll to the “move” function screen located on the CubeX control panel.
2. Using the Up and Down arrows move the Print Pad to its lowest position.
3. To install the Print Pad, align the aluminum foot with front slot on the Print Pad base.
4. Place the Print Pad into position, when properly installed the magnet will lock it in place.

INSTALLING YOUR CUBIFY INVENT SOFTWARE

Your Cubify Invent license code and USB Key can be found in your CubeX toolbox at the base of the CubeX packaging.

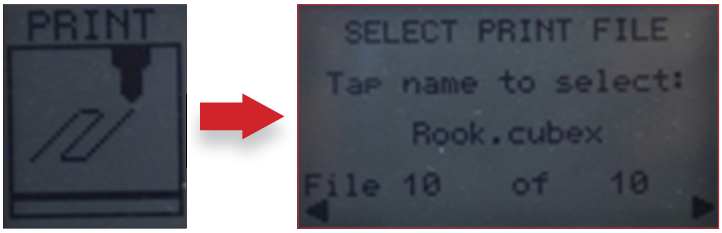
1. Plug the USB provided with your CubeX into your computer and launch “Cubify_Invent.exe”.
2. Follow the onscreen instructions.
3. When setup is complete, close the Installation Wizard.
4. Open Cubify Invent and enter the license key (located in the toolkit) when prompted.
5. Congratulations! You now have access to Cubify Invent

GETTING STARTED

CUBEX MAIN MENU OVERVIEW

Further details about these menu options can be found throughout this manual.

PRINT View the .cunex files that are saved on your memory stick and select a .cubex file to print.

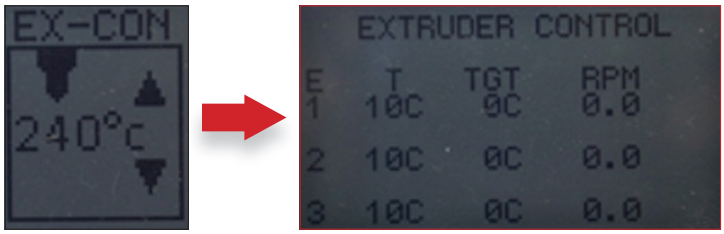


INFO Shows the status of your cartridge, including what colors and materials you have loaded into each cartridge dock.

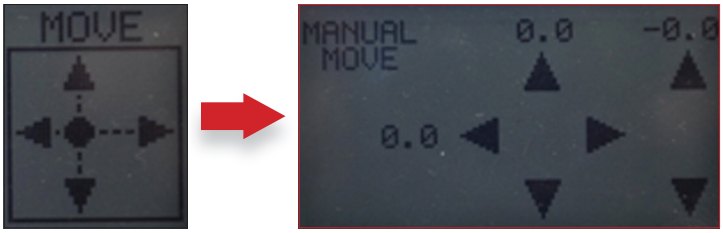
REPLACE Guides you through the process of loading a cartridge into an empty dock or replacing one cartridge with another.

EX-MAP Allows you to re-map your print jets.

EX-CON Allows you to manually jet your print jets, giving you control of temperature and RPM.

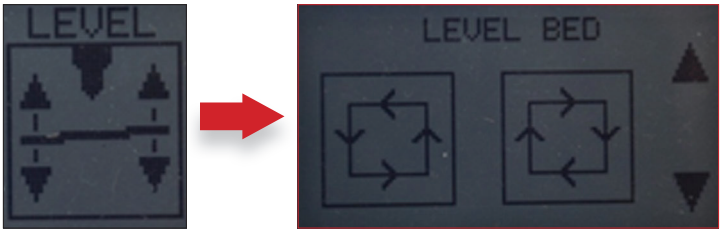


MOVE Manually moves your print jet carriage in the X, Y and Z directions.

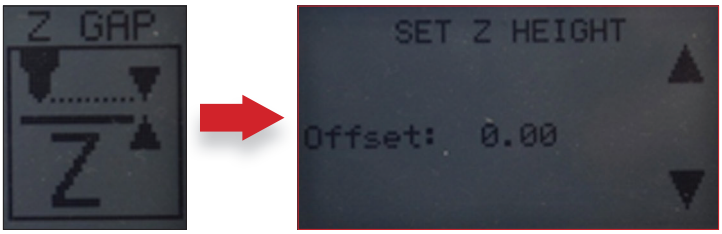


HOME Sends the print jet carriage to its home position located in the back left corner of the printer.

LEVEL Level your print pad in relation to the print tips.

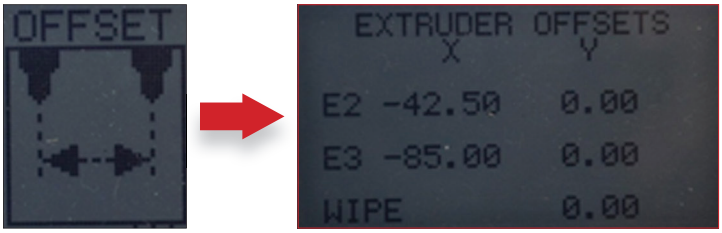


Z-GAP Set the distance between the print pad and print tips during the first layer of printing.



OFFSET Set the relative distance between each print tip.

Do not use the offset menu unless you have been advised to do so by Cubify support, changing this may affect the quality of multi-material prints.



UPDATE Used to update CubeX firmware.

DOWNLOADING AND INSTALLING CUBEX SOFTWARE

DOWNLOADING CUBEX SOFTWARE

Go to **Cubify.com/cubex/index.aspx** and click the download CubeX software link.

INSTALLING CUBEX SOFTWARE

1. Go to the directory where the CubeX software was downloaded and unzip the CubeX software folder.
2. Run the CubeX Setup file. (Fig. 25)
3. Follow the installer wizard. (Fig. 26)
4. Select a destination for the installation. (Fig. 27)
5. Click next to begin the installation. If windows ask if you want to let the CubeX software make changes to your computer, select yes. (Fig. 28)
6. The installation is now complete, you can open the CubeX software from the icon located on your desktop. (Fig. 29 & 30)

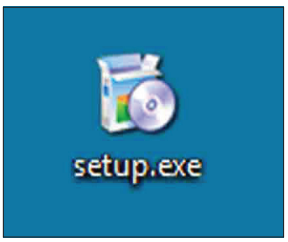


Fig. 25

Fig. 26

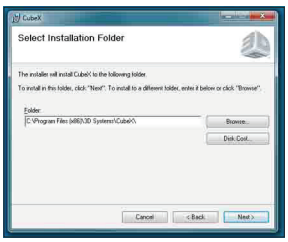


Fig. 27

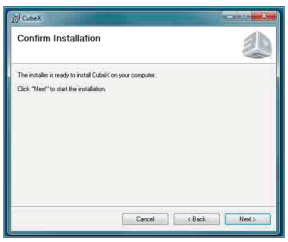


Fig. 28

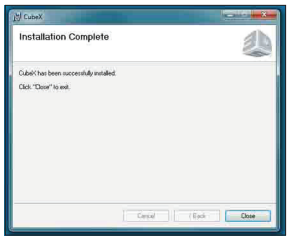


Fig. 29

Fig. 30

CUBEX SOFTWARE

The CubeX software (Fig. 31) is used to create the .cubex files that your CubeX will use to create your parts. The software allows you to orient, scale, re-size and rotate the part before printing.

- When you first open the CubeX software you will be greeted with a message asking you to configure your printer in the CubeX software. (Fig. 32)
- Once the printer configuration window opens, select the number of “Print Jets” that is installed and the material types that are loaded into the Print Jets. Click “OK” to save these settings. (Fig. 33)

Fig. 31

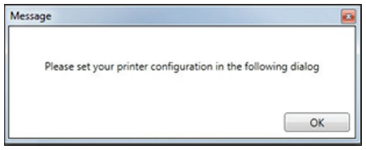


Fig. 32

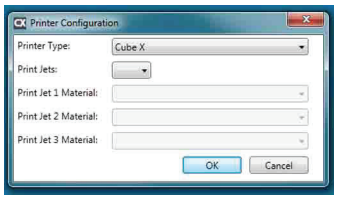


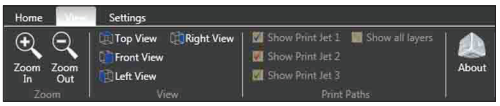
Fig. 33

CUBEX SOFTWARE USER INTERFACE

HOME TAB

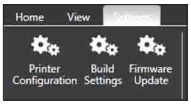
STL FILE	OPEN	Opens a .stl file
	OPEN MODEL ASSEMBLY	Open a multi-part assembly of .stl files
	CLOSE	Close the open .stl file
	SAVE AS	Save the current open .stl file
	AUTO PLACE	Automatically places .stl files which are already open
	SINGLE SHELL	When checked will automatically select all parts as one shell
PRINT FILE	OPEN	Opens a .cubex file
	CLOSE	Close the open .cubex file
	SAVE PRINT FILE	Save the current open .cubex file
SCALE GEOMETRY	% SCALE	Scale your part before creating the .cubex file
	TO MM	Change a part from inches to mm
	TO INCHES	Change a part from mm to inches
	REVERT	Undo changes made using the Scale Geometry options
ROTATE GEOMETRY	X / Y / Z	Rotate the part in the X, Y, or Z axis
	REVERT	Undo changes made using the Rotate Geometry options

PICK SHELLS	Select which Print Jets print which parts. The available options will vary depending on how many Print Jets you have active and what colors are loaded into them.
BUILD	Opens the build settings window.



VIEW TAB

ZOOM	ZOOM IN	Press to zoom in
	ZOOM OUT	Press to zoom out
VIEW	TOP VIEW	Press to view the part from above
	FRONT VIEW	Press to view the part from the front
	LEFT VIEW	Press to view the part from the left side
	RIGHT VIEW	Press to view the part from the right side
PRINT PATHS	SHOW PRINT JET 1	Toggle to show the print paths for print jet 1 in a .cubex file
	SHOW PRINT JET 2	Toggle to show the print paths for print jet 2 in a .cubex file
	SHOW PRINT JET 3	Toggle to show the print paths for print jet 3 in a .cubex file
	SHOW ALL LAYERS	Toggle to show all layers or to show one layer at a time. Scroll through the layers using the scroll bar found down the right hand side of the window



SETTINGS TAB

PRINTER CONFIGURATION	Opens the printer configuration window.
BUILD SETTINGS	Opens the build settings window.
FIRMWARE UPDATE	Used to update the CubeX printer firmware

HOW TO OPEN FILES IN THE CUBEX SOFTWARE

The CubeX software has three different possible ways to open .stl files. A single part file, multiple single part files on one Print Pad and a multi-part assembly file.

- A single part file consists of one .stl with one shell on a Print Pad.
- A multiple single part file consists of multiple .stl's opened onto one Print Pad, these can be selected as one, two or three shells.
- A multi-part assembly file consists of multiple .stl's designed to create one assembly part. These can be treated as one, two or three shells.

OPENING A SINGLE PART FILE

1. Click the open button. (Fig. 34)
2. Select your .stl or .creation and click open. (Fig. 35)
3. The .stl will appear in the middle of the bed in the software. (Fig. 36)
4. When printing in a single material be sure to keep Single Shell selected. (Fig. 37)

OPENING MULTIPLE SINGLE PART FILES

1. With your first .stl open, return to the open option. (Fig. 38)
2. Open your next .stl. (Fig. 39)
3. The second part will open in the center of the bed and appear to be merged with the first part. (Fig. 40)

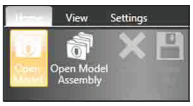


Fig. 34

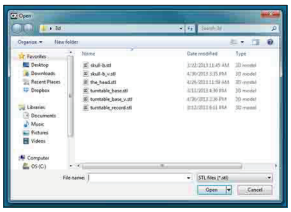


Fig. 35

Fig. 36

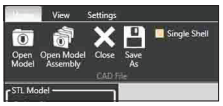


Fig. 37

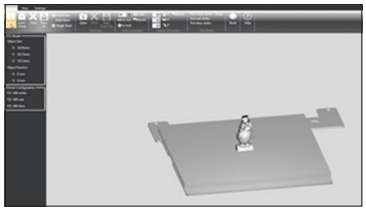


Fig. 38

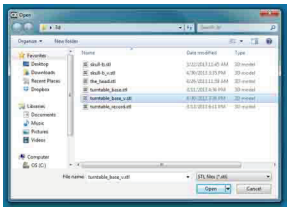


Fig. 39

Fig. 40

POSITIONING MULTIPLE PARTS

- **Manual positioning:** Right click and hold on one of the parts, you can now drag it around the bed (when using this method the bed will automatically switch to top view). (Fig. 41 & 42)
- **Autoplace:** Clicking the auto place button will automatically position your parts on the bed for you. (Fig. 43 & 44)

Fig. 41

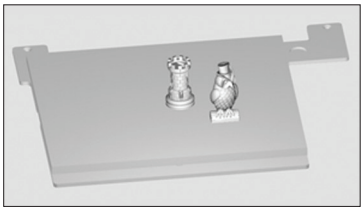


Fig. 42

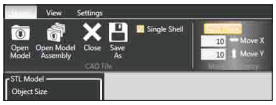


Fig. 43

Fig. 44

OPENING A MULTI-PART ASSEMBLY FILE

1. Select the open model assembly button. (Fig. 45)
2. Open the first part of your .stl assembly, a screen will appear asking if you wish to add an additional assembly model. Selecting ok will bring back the open file window. (Fig. 46)
3. Continue following this process until all of your .stl's are open.
4. When all the .stl's are open, click the done button to finish the assembly file. This file can now be treated as one .stl with multiple shells. (Fig. 47 & 48)

Fig. 45

Fig. 46

Fig. 47

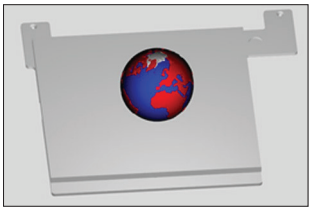


Fig. 48

USING THE SHELL SELECTOR TOOL

The Shell Selector tool is used to select which Print Jets print which parts of a multi-material part/multiple parts on a Print Pad. (Fig. 49) The color options available will correspond to the material colors you have set in printer configuration.

1. Select the shell color you wish to use. (Fig. 50)
2. Hover over the shell you wish to select. (Fig. 51)
3. Left click to color the shell. (Fig. 52)
4. Continue this process until all the shells are colored as desired. (Fig. 53)
5. When you have finished using the Shell Selector tool press the done button. (Fig. 54) Some features of the software may not be available with the shell selector tool active.

Fig. 49

Fig. 50

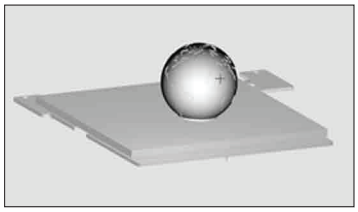


Fig. 51

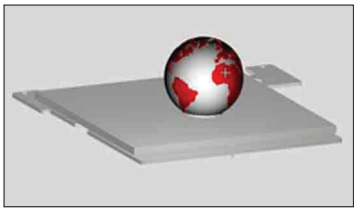


Fig. 52

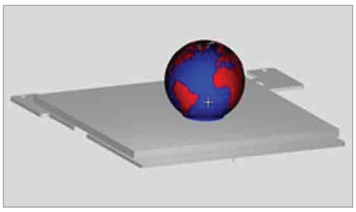


Fig. 53

Fig. 54

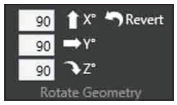


Fig. 55

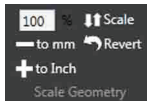


Fig. 56

ROTATING A PART

Use the rotate buttons to rotate the part in the desired axis. The amount the part will be turned is defaulted to 90. This can be changed to suit your needs. (Fig. 55)

SCALING A PART

You can scale a part by pressing the scale button. The amount your part will be scaled by is defaulted to 50%. This can be changed to suit your needs. You can also use the – to mm and + to inch to scale by unit conversion. (Fig. 56)

USING THE CUBEX SOFTWARE TO BUILD A .CUBEX FILE (Fig. 57)

BUILD STYLE PROFILE

Use this to select previously saved print settings. To save print settings you are using for future quick selection, press the save as button and give the profile a name.

LAYER THICKNESS

This is the resolution your part will be printed at.

0.1mm	The CubeX printers finest resolution. This layer height takes the longest to print but gives the best quality parts.
0.25mm 0.5mm.	A middle ground between 0.1mm and This layer height is faster than 0.1mm but is slightly lower quality.
0.5mm	The CubeX printers fastest resolution. This layer height has a lower quality than 0.1mm and 0.25mm but has a much faster print time.

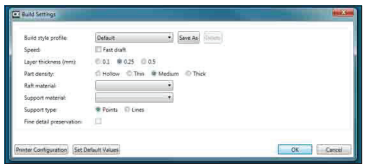


Fig. 57

PART DENSITY	This is how much solid fill your part will contain.
	Hollow — The part will have no internal structure.
	Thin — The part will have a small amount of internal structure to give it support.
	Medium — The part will have a good internal structure supporting it.
	Heavy — A heavy part with a strong internal structure.
RAFT MATERIAL	Use this to select which material will print your raft or the raftless option. We recommend printing raftless but some larger parts may require a raft.
SUPPORT MATERIAL	Use this to select your support material or the no support option. Support material may be required when printing parts with overhangs greater than 50°. Before printing with supports try rotating your model in the software to see if this can eliminate the overhangs. If this is not possible then supports may be required.
SUPPORT TYPE	Choose between points and lines for your support material. Does not affect the print if no support is selected.
FINE DETAIL PRESERVATION	Enabling this will preserve finer details of your part, but may affect accuracy.
PART MATERIAL	Similar to Printer Configuration, this tells the software which materials are loaded into which print jets. Part materials works in a similar way to Printer Configuration, telling the software which materials are loaded into which print jets. Please be sure that the materials selected in part materials correspond to the print jets the materials are allocated too.
BUILD	Once you have selected all of your preferences press the build button to create the .cubex file.

SAVING A .CUBEX FILE FOR PRINTING

1. Click the Save Print File button. (Fig. 58)
2. Choose the location you wish to save the .cubex file, give it a suitable name and click “Save.” Transfer the .cubex file to your USB stick for printing. (Fig. 59)

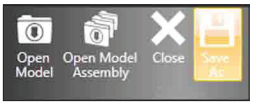


Fig. 58

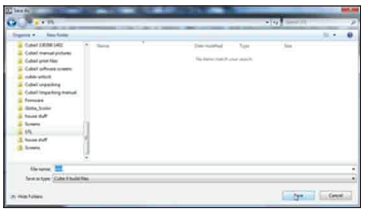


Fig. 59

PRINTING YOUR FIRST CREATION

Test creations have been printed on Your CubeX before leaving our factory. A different material and / or color may have been used for the test creation and may have a small amount of this test material in the print jet. Therefore, the start of your first creation may print some of this material and / or color before it transitions to your material/color of choice.

WARNING: PRINT TIPS BECOME EXTREMELY HOT DURING SET-UP AND OPERATION. DO NOT TOUCH PRINT TIP.

Do not change cartridge color or material type during printing; doing so may damage the CubeX.

Please ensure you have followed all CubeX setup instructions before starting a print. Failure to do so may damage the CubeX.

1. Insert the USB stick containing your .CUBEX file into the USB port on the CubeX.
2. Use the CubeStick to coat the Print Pad glass with a layer of Cube glue.

- Turn the CubeStick upside down so the glue flows to the tip. (Fig. 60)
- Apply 3 layers of CubeStick using a slow circular motion. (Fig. 61)

3. Select the ‘Print’ option from the main menu.
4. Using the arrows at the bottom of the screen, scroll to the .cubex files you wish to print and tap on the file name. (Fig. 62)
5. Your CubeX will now start printing your creation.

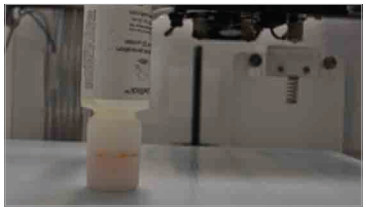


Fig. 60

Fig. 61

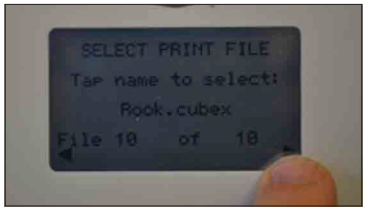


Fig. 62

FINISHING YOUR CREATION

REMOVING YOUR CREATION FROM THE PRINT PAD

Before you attempt to remove your creation from the Print Pad, please ensure that the CubeX has finished printing and that the Print Pad has moved to the bottom of the CubeX.

1. Remove the Print Pad from the CubeX.
2. Submerge Print Pad and the base of the part in warm water for five minutes.
   - If you do not have the ability to submerge the Print Pad place Print Pad in sink and let hot water run over the base of the part for about 5 minutes
3. Use the scraper (included), gently release your creation from the glass.
4. Rinse your creation under hot water to ensure all of the CubeStick paste has been removed.
5. To clean the Print Pad, rinse the pad under hot water to clean off any remaining CubeStick paste. Allow it to dry before your next print.
6. Dry the Print Pad thoroughly before reinstalling it in CubeX.

REMOVING RAFTS

Though we recommend printing without a raft, some larger or more complicated parts may require one. If you print with a raft, the following instructions will help you remove it:

ABS RAFT / PLA PART - PLA RAFT / ABS PART	ABS rafts can be peeled away from PLA parts.
ABS RAFT / ABS PART - PLA RAFT / PLA PART	Use pliers to pull away as much of the raft as possible. Then use a rough-grade sandpaper to remove the remaining raft, followed by a fine-grade wet and dry sandpaper to achieve a smoother finish.

REMOVING SUPPORTS WITH WIRE CUTTERS

Use wire cutters to cut away the support structure from your model. You should cut the supports at the point where they touch the model.

REMOVING SUPPORTS WITH THE ULTRASONIC SUPPORT REMOVAL TANK

Caustic soda can burn if handled improperly. Never handle caustic soda without using all of the supplied Personal Protective Equipment (PPE): gloves, goggles and tongs. If caustic soda touches the skin, wash it away immediately. If caustic soda touches the eyes, immediately use an eyewash treatment.

Never operate the unit without water in the cleaning tank. Damage may occur.

Never use boiling water. Damage may occur.

The Ultrasonic Support Removal Tank automatically removes PLA support material from ABS models. The tank uses one of two methods to remove or weaken the material:

- Use caustic soda solution in the Ultrasonic Support Removal tank for 3 hours to dissolve the PLA material.
- Weakening the PLA material for manual removal by lightly scraping or by hot water soak for 48 hours

METHOD	ADVANTAGES	DISADVANTAGES
Hot water	Avoid use of corrosive chemicals	Support material requires slight physical force to crumble away. Support material in hidden cavities may remain if user is unable to reach them. Process is relatively extended.
Caustic soda	Quick removal. Support material in hidden cavities will be dissolved without physical force, provided the solution can reach the cavity	Requires health and safety procedures.

HOT WATER METHOD

This process uses hot water (approximately 80°C). Wear all Personal Protective Equipment (PPE).

Do not operate without water in the cleaning tank. Damage may occur.

Never use boiling water. Damage may occur.

1. Position the unit on a flat and stable work surface. Do not knock or move the tank during operation. This risks splashing water onto electrical components.
2. Pour 0.75 liters of water into the tank.
3. Place the models to be cleaned in the tank.
4. Close the lid, connect the power supply and press the power button to turn on the tank.
5. Use the -5 and +5 buttons to set the temperature. For best results, set the temperature to 80°C.
6. Set an alarm for 48 hours. Do not use the timer on the tank when using the hot water method. This is intended for the ultrasonic operation used with the caustic soda method and will only run for 180 minutes.
7. After 48 hours, remove your model from the tank using the provided plastic tongs and immediately run under cold water for 1-2 minutes.
8. Make sure you turned off the Ultrasonic Support Removal Tank.
9. After the model has been washed, the PLA support material should crumble away easily. You can use a blunt knife to scrape the support away from the model. Additional rinsing may help flush remaining support material fragments from the model.

CAUSTIC SODA METHOD

Caustic soda can burn if handled improperly. Never handle caustic soda without using all of the supplied Personal Protective Equipment (PPE): gloves, goggles and tongs. If caustic soda touches the skin, wash it away immediately. If caustic soda touches the eyes, immediately use an eyewash treatment.

Never operate the unit without water in the cleaning tank. Damage may occur.

Never use boiling water. Damage may occur.

1. Position the unit on a flat and stable work surface. Do not knock or move the tank during operation. This risks splashing water onto electrical components.
2. Fill the tank with 0.75 liters of cold water. The caustic soda will create an exothermic reaction when added, which will elevate the temperature of the solution.

   Caustic soda is a harmful substance and can cause permanent damage if it touches the skin or eyes. Use of personal protective equipment is essential. Never handle caustic soda without using the supplied gloves and eye protection. Ensure that the area is cleaned down immediately after use, and lock the caustic soda away to prevent misuse.

   Do not engage the ultrasonic feature while stirring in the caustic soda. This will encourage the solution to vaporize.

   Ensure the area is well ventilated, and do not directly inhale the vapor from the tank.
3. Using scales and a measuring bowl, measure out 200 grams of caustic soda.
4. Pour the caustic soda into the tank in approximately 40-gram increments, stirring thoroughly after each addition. Stirring is essential to make sure the caustic soda granules do not collect at the bottom of the tank.
5. Immediately clean measuring bowl and scales to ensure removal of all caustic soda.
6. Using the plastic tongs and all the personal protection equipment provided, gently lower the model into the caustic soda solution being very careful not to spill any of the solution.
7. Close the lid, connect the power supply and press the power button to turn on the tank.
8. Use the -5 and +5 buttons to set the temperature. For best results, set the temperature to 60°C.

   Do not set the temperature above 60°C as the reaction between the caustic soda and the water is exothermic, and will continue to elevate the temperature. Actual temperature should never exceed 80°C.
9. Once the tank has reached 60°C, use the -5 and +5 buttons to set the timer for 180 minutes. The ultrasonic process will begin as soon as you have set the time.
10. After 180 minutes, remove your model from the tank using the plastic tongs and wearing the personal protection equipment provided. Immediately run under cold water for 1-2 minutes.

    Continue wearing your personal protection equipment when handling the model until the manual tells you it is safe to do otherwise.
11. All support material should have dissolved. Any remaining supports can be crumbled or scraped away with a knife, or rinsed off in the sink.
12. Empty the caustic solution from your Ultrasonic Support Removal Tank. It is safe to pour it in the sink as caustic soda can be used as a drain cleaner.
13. Rinse the tank and refill it with 0.75 liters of water.
14. Using the plastic tongs, place the model back in the tank.
15. Once you have cleaned all caustic soda from the area, you may remove your personal protection equipment.
16. Repeat the ultrasonic process with the clean water for 30 minutes at 60°C to remove any caustic soda residue that may remain on the model.
17. Once you have completed the ultrasonic process for the second time, use the provided tongs to remove the model from the ultrasonic tank and rinse it under cold water for 1-2 minutes.

CUBEX MAINTENANCE

RESTORING ROUGHNESS TO THE PRINT PAD

To restore roughness to the Print Pad, run the sandpaper included in your toolkit diagonally across the bed corner to corner in both directions. (Fig. 63)

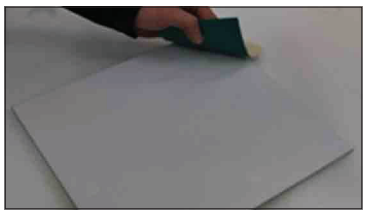


Fig. 63

Fig. 64

LEVELLING THE JET WIPER HEIGHT

If your Jet Wipe is set too low or too high, you can adjust it using the orange capped bolt located under the print jet, screwing it into the floor to set the Jet wipe lower and unscrewing it to set the Jet Wipe higher. (Fig. 64)

LEVELING THE PRINT PAD

It is important that the Print Pad is level in order to get a good print. To help you out, we make every effort to ensure that the Print Pad is level when the machine leaves our factory. However, the Print Pad may move in transit, making it necessary to check that it is still level when it reaches you.

You will first need to ensure that your aluminum pad support is level. After this you can install the Print Pad and fine-tune the leveling.

NOTE: When leveling the Print Pad, always use print tip 1 as your reference.

LEVELING THE ALUMINUM PAD SUPPORT

Before starting the process you need to remove the Print Pad from the aluminum pad support.

The aluminum pad support is mounted on three sprung bolts which allow you to adjust the height of the Print Pad in three places.

The ‘Level’ function moves the extruder carriage around the corners of the print area so the operator can adjust the Print Pad support bolts for leveling.

1. Select ‘Level’ on the touchscreen. (Fig. 65)
2. Use the Up and Down arrows to raise and lower the print bed to adjust the gap between the print jet and Print Pad. Start with approximately 10 mm between the nozzle and the Print Pad. This distance will enable rough leveling. (Fig. 66)
3. Touch the ‘Clockwise’ and ‘Counter-clockwise’ buttons to automatically move the carriage around the corners of the print area. (Fig. 67 & 68-71)
4. From the side of the machine, observe any changes in distance between the Print Pad and the print jet during each movement along the side of the Print Pad.
5. Adjust the height of the Print Pad bolts (Fig. 72) to make each side level using the 3mm hex driver from the tool kit. There is a locking nut beneath each of the 3 bed bolts that must be loosened with the 8mm spanner before the bolt can be adjusted. (Fig. 73)
6. It may take several extruder movements and bolt adjustments to ensure that the Print Pad is level.
7. Ensure that axes have been checked from the appropriate side of the machine (to better gauge flatness).

Fig. 65

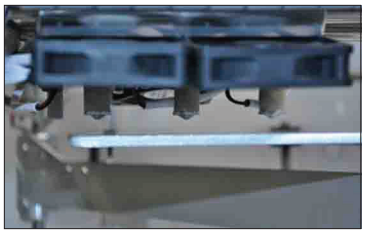


Fig. 66

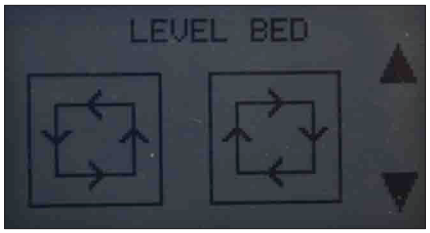


Fig. 67

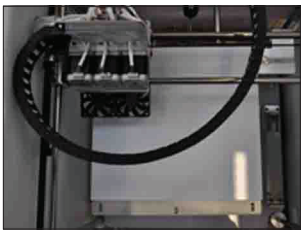


Fig. 68

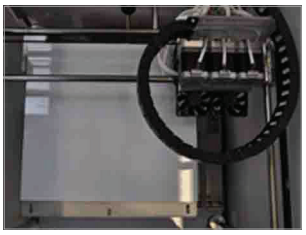


Fig. 69

Fig. 70

Fig. 71

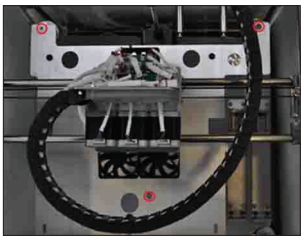


Fig. 72

Fig. 73

FINE-TUNING YOUR PRINT PAD

1. Re-install the Print Pad before fine tuning.
2. Use the Up and Down arrows to reduce the gap between the print jet and Print Pad to approximately 2 mm. This will enable finer leveling. (Fig. 74)
3. Use the two remaining visible bolts to repeat the leveling process.
4. Click the ‘Function’ button to leave the ‘Level’ menu, and return to the main menu.

   CAUTION: Observe each axis movement and ensure the print jet is not touching the Print Pad. Moving the axis when the print jet is touching the Print Pad will damage both the print jet and the Print Pad. If the print jet touches the Print Pad, immediately lower the Print Pad using the Down arrow.
5. Remember to lock the 3 Print Pad bolts into position by tightening the lock nut under each with the 8mm spanner. To stop the bolt from spinning while you tighten the nut, hold it in position with the 3mm hex driver found on the top side of the Print Pad.

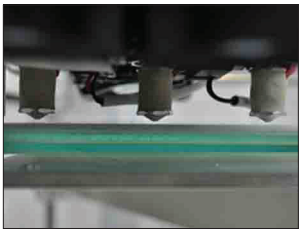


Fig. 74

Fig. 75

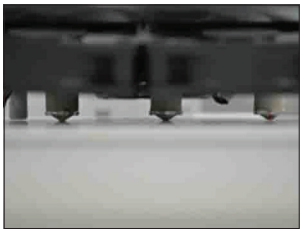


Fig. 76

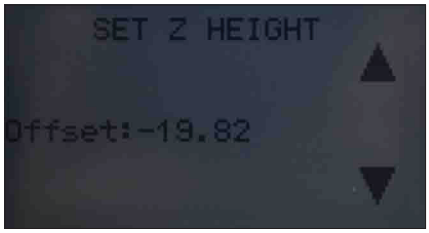


Fig. 77

SETTING THE PRINT JET GAP

After leveling the Print Pad, the print jet must be set to the correct height to ensure that the first printed layer sticks properly (if the print jet is too high, the filament will not stick to the Print Pad; if the print jet is too low, the Print Pad may obstruct the print jet). Use the 'Z Gap' function to accurately adjust the height of the print jet for the first layer.

- Select the 'Z-Gap' function on the touchscreen. (Fig. 75)
- Observe the gap between the print jet and Print Pad from the front of the machine. Press and hold the Z +/- buttons to move the Print Pad.
- Make sure the print jet is clean. For cleaning instructions, see 'MAINTAINING YOUR CUBEX > Cleaning the Print Jet').
- Start with a gap between the Print Pad and the print jet and move the Print Pad towards the print jet. (Figs. 26 & 27) Observe the Print Pad as it approaches the print jet. (Fig. 76) Stop raising the Print Pad as soon as the print jet touches the Print Pad's surface. If the Print Pad goes too far, simply move the Print Pad back and repeat the approach.
- Lower the Print Pad by 0.1 to produce a large enough Z gap for printing. (Fig. 77)

CAUTION: If the print jet pushes against the Print Pad too hard, the print jet will be forced into the Print Pad for the entire first layer of printing. This will damage both the Print Pad and the print jet. Make sure the Print Pad springs are not compromised when setting the print jet against the Print Pad.

- Clicking the 'Function' button gives the option to save the gap setting to the printer's memory, which will be retained even after the machine is powered off. This Z gap value will be applied for each subsequent print.

UNBLOCKING THE CUBEX PRINT TIP

If your CubeX will not jet material, you can unblock the print tip by going into 'Ex-Con' from the main menu and heating the tip to 260°C. Then feed the 0.5mm drill bit from the tool kit into the print tip, being careful not to bend the drill bit. Remove the drill bit and set the motor to 3RPM. Repeat this process until the print tip jets.

WARNING: PRINT TIP BECOMES EXTREMELY HOT DURING SET-UP AND OPERATION. DO NOT TOUCH PRINT TIP.

UNBLOCKING THE CUBEX PRINT JET

If the print tip still won't jet material after unblocking it, you may need to unblock the print jet. First remove the delivery tube face plate and take out the cartridge, removing all filament from the corresponding cartridge dock, delivery tube and print jet. Then go into 'Ex-con' from the main menu and set the print jet temperature to 260°C. Once this temperature has been reached, insert an unfolded paper clip into the print jet through the filament loading hole and push it in as far as possible. Run the print jet at 2RPM and gently push down on the paper clip until you feel resistance. Start reversing the print jet at -2RPM and slowly pull the paper clip back out of the print jet. Reload the cartridge and filament back into the print jet and try to jet material again. If your print jet still won't jet material at this point, contact Cubify support.

WARNING: PRINT TIP BECOMES EXTREMELY HOT DURING SET-UP AND OPERATION. DO NOT TOUCH PRINT TIP.

UPDATING CUBEX FIRMWARE

If you are unsure what version of firmware is currently installed on your CubeX printer, navigate to the upgrade button on the main menu and the version number will be located beneath it. (Fig. 78)

UPGRADING YOUR CUBEX PRINTER FIRMWARE

1. Plug your USB stick into the CubeX printer. (Fig. 79)
2. Navigate to the upgrade button on the main menu. Hold down the function button and the upgrade button at the same time (Fig. 80), the following window will appear. (Fig. 81) Still holding the function button press the tick on the screen to put the CubeX printer into boot loader mode. (Fig. 82)
3. Remove the USB stick from the CubeX printer. (Fig. 83)
4. Open the CubeX software on your computer. (Fig. 84)

5. Plug your CubeX into the computer using the PC connection USB port (Fig. 85 & 86). Navigate to the settings tab on the CubeX software and press the Firmware update button. (Fig. 87)
6. The CubeX software will then open windows explorer. Navigate to the firmware you wish to install and open it. (Fig. 88)
7. The CubeX software will now install the firmware onto the CubeX printer. (Fig. 89)
8. Once the firmware is installed unplug the printer from the mains power for 30 seconds and unplug the USB from the computer. (Fig. 90) (If you are upgrading from firmware version 1.01 please skip to the section RESTORING THE SETTINGS TO YOUR CUBEX PRINTER FIRMWARE FROM V1.01)
9. Plug the USB stick into the CubeX printer and turn it on, touch the screen and you will receive a notification of your settings being restored. (Fig. 91)
10. Your firmware has now been upgraded.

Fig. 78

Fig. 79

Fig. 80

Fig. 81

Fig. 82

Fig. 83

Fig. 84

Fig. 85

Fig. 86

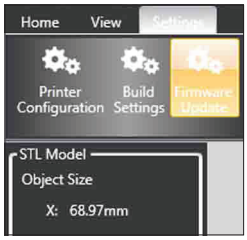


Fig. 87

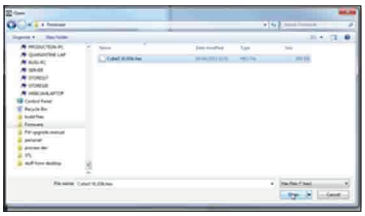


Fig. 88

Fig. 89

Fig. 90

Fig. 91

RESTORING THE SETTINGS YOUR CUBEX PRINTER FIRMWARE FROM V1.01

Before following these instructions, please follow instruction 1-8 in the section UPGRADING YOUR CUBEX PRINTER FIRMWARE.

1. Turn on the CubeX printer. You will see the activation screen.
2. Re-activate your machine using your activation code. (if you do not have your activation code, you can locate it be going to cubify.com>my account>my devices and then viewing your registered CubeX).
3. Once it is re activated turn off the CubeX printer.
4. Plug the USB stick into the CubeX printer and turn it on, touch the screen and you will receive a notification of your settings being restored.
5. Your firmware has now been upgraded.

HOW TO CONTACT CUBIFY SUPPORT

If you have any problems with your CubeX that cannot be solved using this manual, please contact cubifysupport@cubify.com for your support related issues.

SETTING THE CUBEX PRINT JET OFFSETS

CAUTION: Do not use the offset menu unless you have been advised to do so by Cubify Support, as changes to this may affect the quality of multi-material prints.

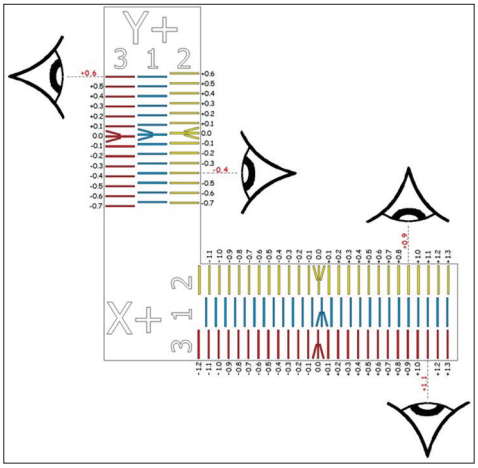


Fig. 33

PRINTING THE CALIBRATION FILE

Download the CubeX calibration file from (enter address here)

Print the CubeX calibration file as you would any other print file.

READING THE CALIBRATION FILE

The lines on the calibration print are offset by 0.1 mm. The amount of misalignment can be calculated by counting the amount Scale 2 or 3 is offset from Scale 1.

Scale 1 is printed by Print Jet 1. This is the reference print jet. All offsets are relative to Print Jet 1.

Scale 2 is printed by Print Jet 2. This error amount is the amount Print Jet 2 needs its offsets to be adjusted.

Scale 3 is printed by Print Jet 3. This error amount is the amount Print Jet 3 needs its offsets to be adjusted.

HOW TO ADJUST THE OFFSETS

Touch the relative offset to activate it, a plus and a minus will appear at the side of the screen. Use this plus and minus to adjust the offset.

PRINT JET 2 Y OFFSET

Compare the lines on “Y scale 1” and “Y scale 2” to find the ones that most accurately line up. Because variation is small, it may be easiest to spot 3 that look like they all line up. If this is the case, use the middle one as the correct one. Mark this line with a pen for easier identification.

On “Y scale 2” count from the center line (with the arrow) to the marked line. If you are counting down, the scale the number is negative. If you are counting up, the scale the number is positive. Write down the offset.

In the example shown in Figure 33, the Y offset for extruder 2 is -0.4mm.

PRINT JET 3 Y OFFSET

Compare the lines on “Y scale 1” and “Y scale 3” to find the ones that most accurately line up. Because variation is small, it may be easiest to spot 3 that look like they all line up. If this is the case, use the middle one as the correct one. Mark this line with a pen for easier identification. On “Y scale 3” count from the center line (with the arrow) to the marked line. If you are counting down, the scale the number is negative. If you are counting up, the scale the number is positive.Write down the offset.

In the example shown in Figure 33, the Y offset for extruder 3 is +0.6mm.

PRINT JET 2 X OFFSET

Compare the lines on “X scale 1” and “X scale 2” to find the ones that most accurately line up. Because variation is small, it may be easiest to spot 3 that look like they all line up. If this is the case, use the middle one as the correct one. Mark this line with a pen for easier identification.

On “X scale “2 count from the center line (with the arrow) to the marked line. If you are counting left, the scale the number is negative. If you are counting right, the scale the number is positive. Write down the offset.

In the example shown in Figure 33, the X offset for extruder 2 is +0.9mm.

PRINT JET 3 X OFFSET

Compare the lines on “X scale 1” and “X scale 3” to find the ones that most accurately line up. Because variation is small, it may be easiest to spot 3 that look like they all line up. If this is the case, use the middle one as the correct one. Mark this line with a pen for easier identification.

On “X scale 3” count from the center line (with the arrow) to the marked line. If you are counting left, the scale the number is negative. If you are counting right, the scale the number is positive. Write down the offset.
In the example shown in Figure 33, the X offset for extruder 3 is +1.1mm.

When you have finished inputting your offsets press the function button, the printer will ask you if you wish to save your settings, use the tick and cross to select yes or no.

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